LAB TASK – 2

1. Create a program with a logic that throws the ArrayIndexOutOfBoundsException while accessing elements in an array.

Solution:

```
public class ArrayExceptionExample {
   public static void main(String[] args) {
      try {
         int[] myArray = { 1, 2, 3 };
         int indexOutOfRange = myArray[5];
              System.out.println("Value at index 5: " + indexOutOfRange);
      } catch (ArrayIndexOutOfBoundsException e) {
                    System.err.println("Caught an ArrayIndexOutOfBoundsException: " +
                    e.getMessage());
      }
   }
}
```

Output:

Runtime Error:

Caught an ArrayIndexOutOfboundsException: Index 5 out of bounds for length 3

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2. Write an program to print the array element from 1 to 100.

Solution:

```
public class PrintArrayFrom1To100 {
   public static void main(String[] args) {
      int[] myArray = new int[100];
```

```
        for (int i = 0; i < myArray.length; i++) {
            myArray[i] = i + 1;
        }

        System.out.print("Array elements from 1 to 100: ");
        for (int element : myArray) {
            System.out.print(element + " ");
        }
    }
}
```

Output:

Array elements from 1 to 100: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 .....

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3. Create a Book class with bookId, bookName and authorName.Create parameterized constructor to initialize the object. Create an ArrayList of type Book and store all book objects into collections and display all book details. [Hint:Use advanced for loop to display all Books details]

Solution:

```
import java.util.ArrayList;

class Book {
    private int bookId;
    private String bookName;
    private String authorName;
    public Book(int bookId, String bookName, String authorName) {
```

```
        this.bookId = bookId;
        this.bookName = bookName;
        this.authorName = authorName;
    }
    public int getBookId() {
        return bookId;
    }
    public String getBookName() {
        return bookName;
    }
    public String getAuthorName() {
        return authorName;
    }
}
public class BookCollection {
    public static void main(String[] args) {
        ArrayList<Book> bookList = new ArrayList<>();

        bookList.add(new Book(101, "The Great Gatsby", "F. Scott Fitzgerald"));
        bookList.add(new Book(102, "To Kill a Mockingbird", "Harper Lee"));
        bookList.add(new Book(103, "1984", "George Orwell"));

        System.out.println("Book Details:");
        for (Book book : bookList) {
            System.out.println("Book ID: " + book.getBookId());
            System.out.println("Book Name: " + book.getBookName());
```

```
            System.out.println("Author: " + book.getAuthorName());
            System.out.println();
        }
    }
}
```

Output:

```
Book Details:
Book ID: 101
Book Name: The Great Gatsby
Author: F. Scott Fitzgerald

Book ID: 102
Book Name: To Kill a Mockingbird
Author: Harper Lee

Book ID: 103
Book Name: 1984
Author: George Orwell...
```

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4. Write a program to reverse a given List of strings.

Solution:

```
import java.util.*;
class ReverseListExample {
    public static <T> void reverseList(List<T> list) {
        if (list.size() <= 1 || list == null)
            return;
```

```
        T value = list.remove(0);
        reverseList(list);
        list.add(value);
    }
    public static void main(String[] args) {
        List<String> myList = new ArrayList<>(Arrays.asList("PLATFORM", "LEARNING",
"BEST", "THE", "IS", "GFG"));
        reverseList(myList);
        System.out.println("Reversed order of given List: " + myList);
    }
}
```

Output:

Reversed order of given List: [GFG, IS, THE, BEST, LEARNING, PLATFORM]

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5. Write a Java program that calculates the sum of all even numbers present in an ArrayList of integers.

Solution:

```
import java.util.ArrayList;
import java.util.List;
public class SumOfEvenNumbers {
    public static void main(String[] args) {
        List<Integer> numbers = new ArrayList<>();
        numbers.add(10);
        numbers.add(15);
        numbers.add(20);
        numbers.add(25);
        numbers.add(30);
```

```
        int evenSum = 0;
        for (int num : numbers) {
            if (num % 2 == 0) {
                evenSum += num;
            }
        }
        System.out.println("Sum of even numbers: " + evenSum);
    }
}
```

Output:

```
Sum of even numbers: 60
```